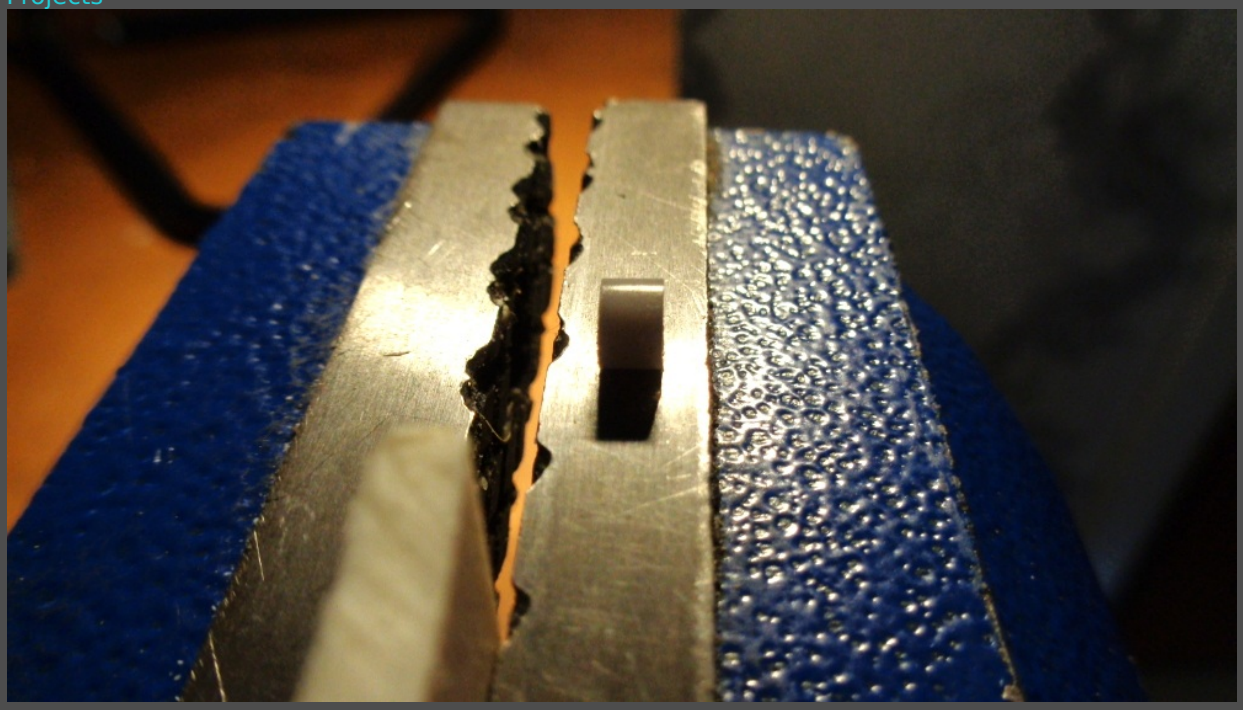
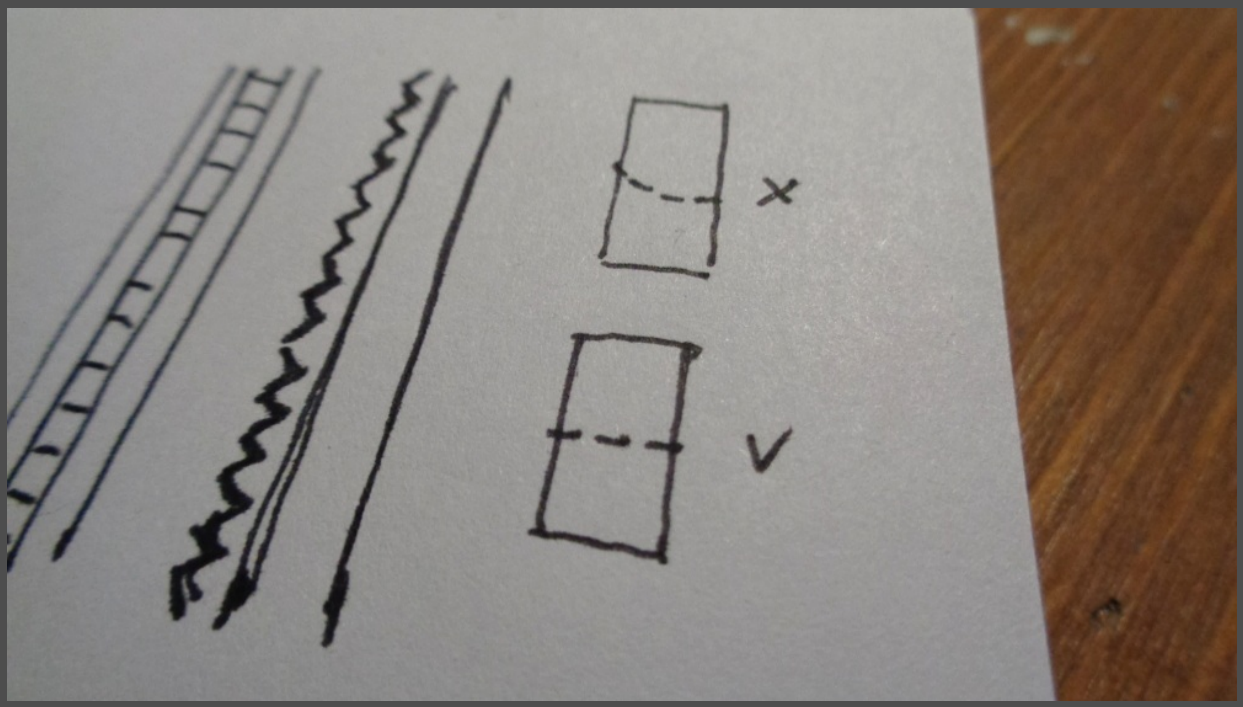


Iron-on bed cutter

Preface

I'm currently working on the third version for my USB Microscope and have encountered a problem for which I haven't found a solution on the Internet. I noticed that sometimes you have to invent your own tools when developing a problem. In many cases you can buy them already or you can modify other tools and adapt them to the new conditions. But this time it had to be done very fast and the tool had to work properly.

The problem



For the microscope I need iron-on beds as a spacer between a Raspberry Pi zero and a plastic plate. The total length of an iron-on bed is 5 mm. Unfortunately this is too long for my requirements. I need these in 3mm to be able to work space- and cost-saving. In my first attempts I had cut the small plastic tubes by hand. That became too unclean and always gave a steep curve. I recorded this once in the photo above. I thought about the problem for a few days and came up with a very simple solution, which produces sufficient results for a prototype.

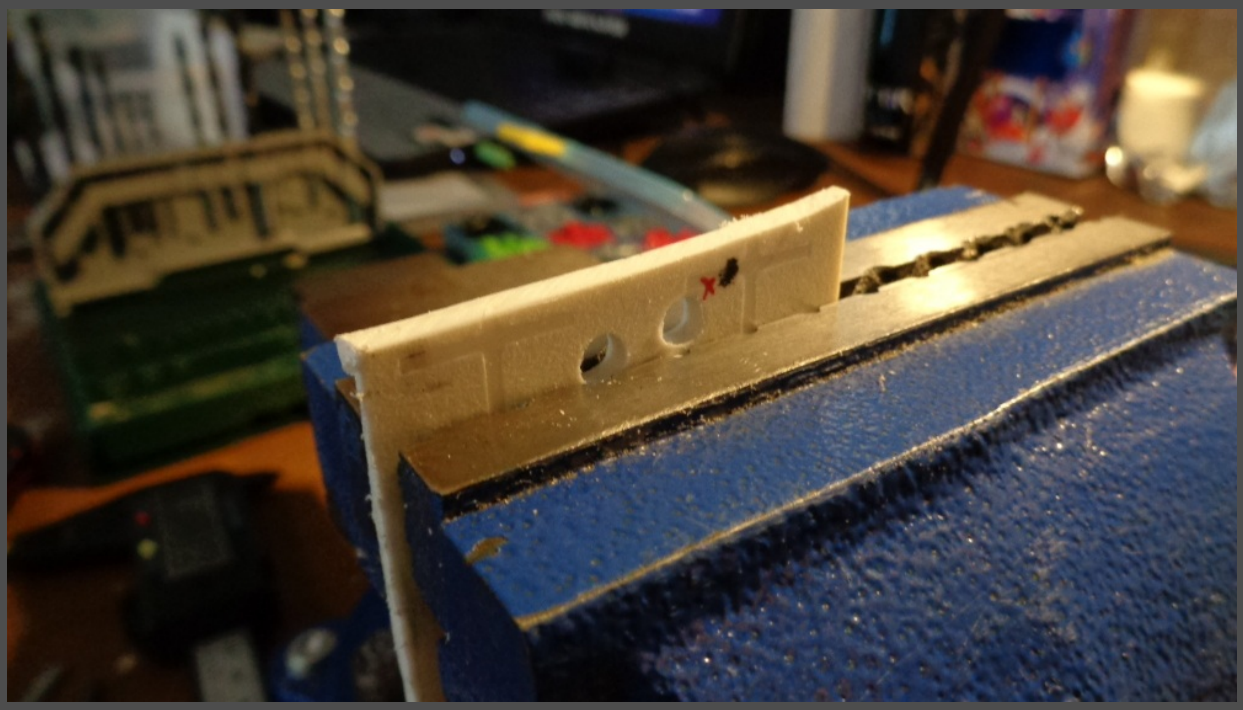
Materials

We should have the material in the workshop. The plastic is still left from the microscope project.

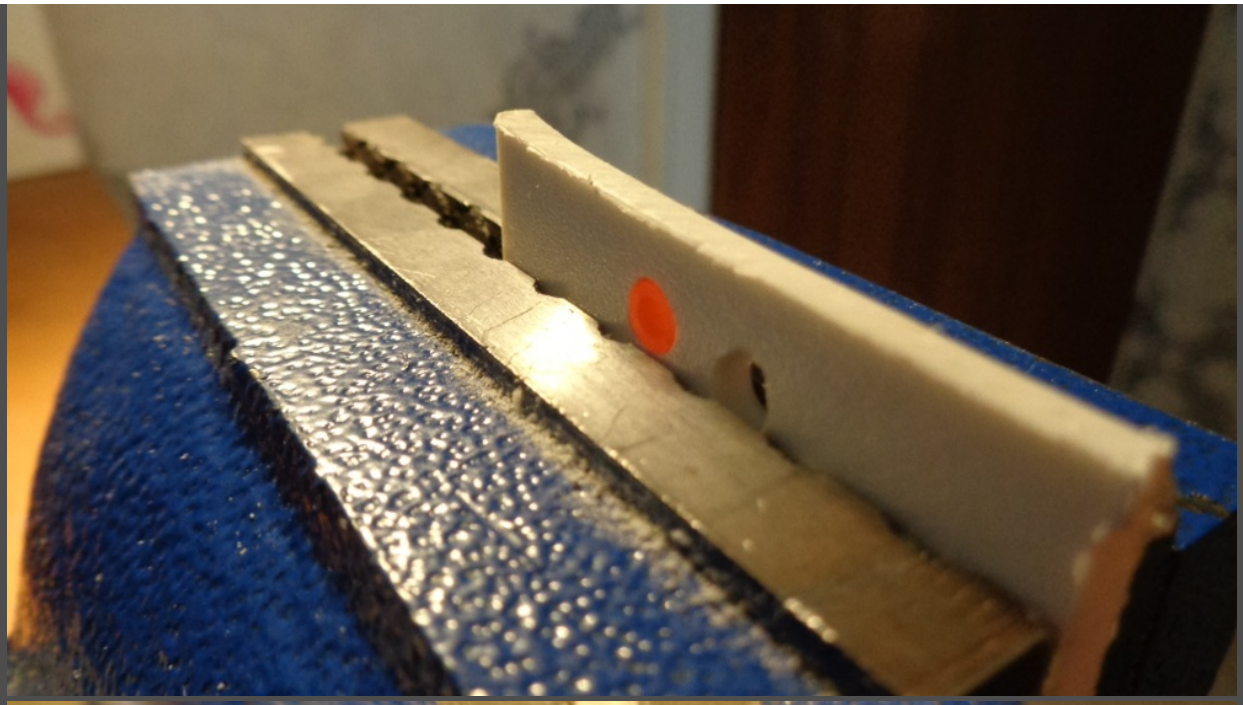
- White plastic Plate (3mm)
- Drill with Drill insert (3mm)
- Round File
- Pens to draw on
- Parallel Vice
- Iron-on Beds
- Sharp Blade from a Carpet Knife
- Safety Goggles

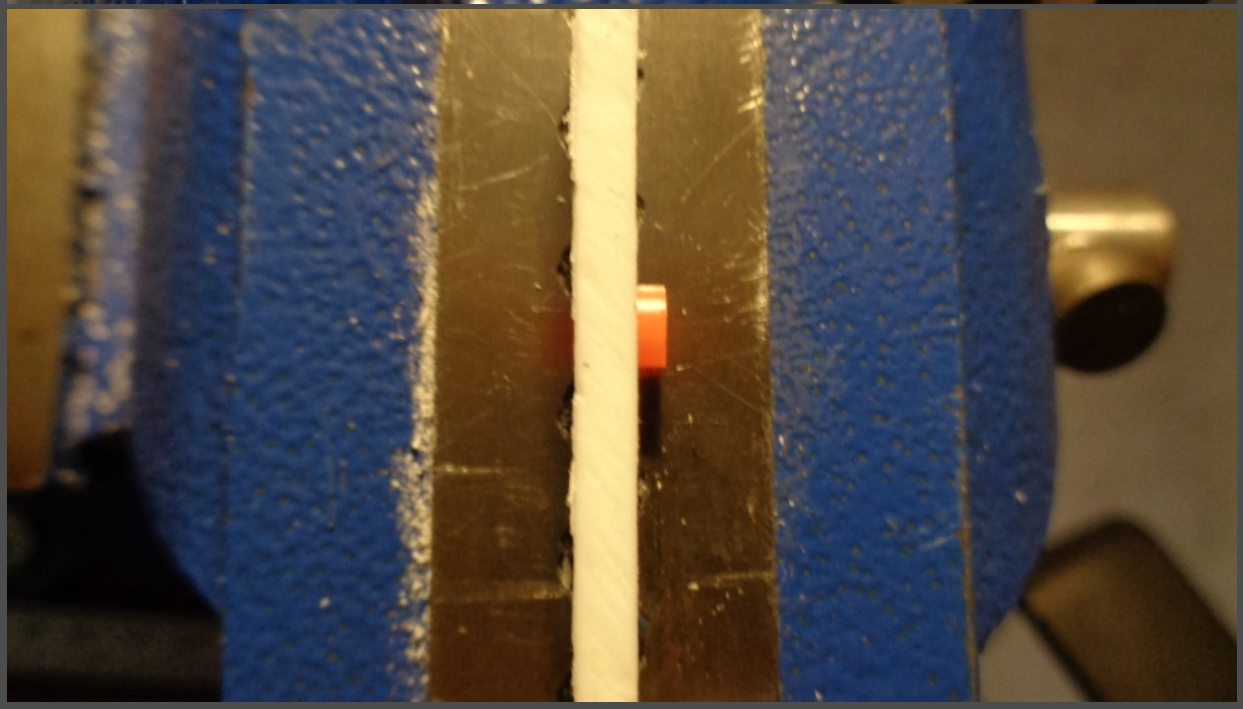
Realisation

First we clamp the 3mm drill insert into our drill. We take care that it has not been plugged into the socket yet. We do this only when we use the drill. As you can see on the photo I also tried a 4mm drill, but it was unfortunately too big and the iron-on bed wobbled too much. The iron-on bed has an outer diameter of exactly 3mm. So we have to enlarge the hole after drilling with the round file.

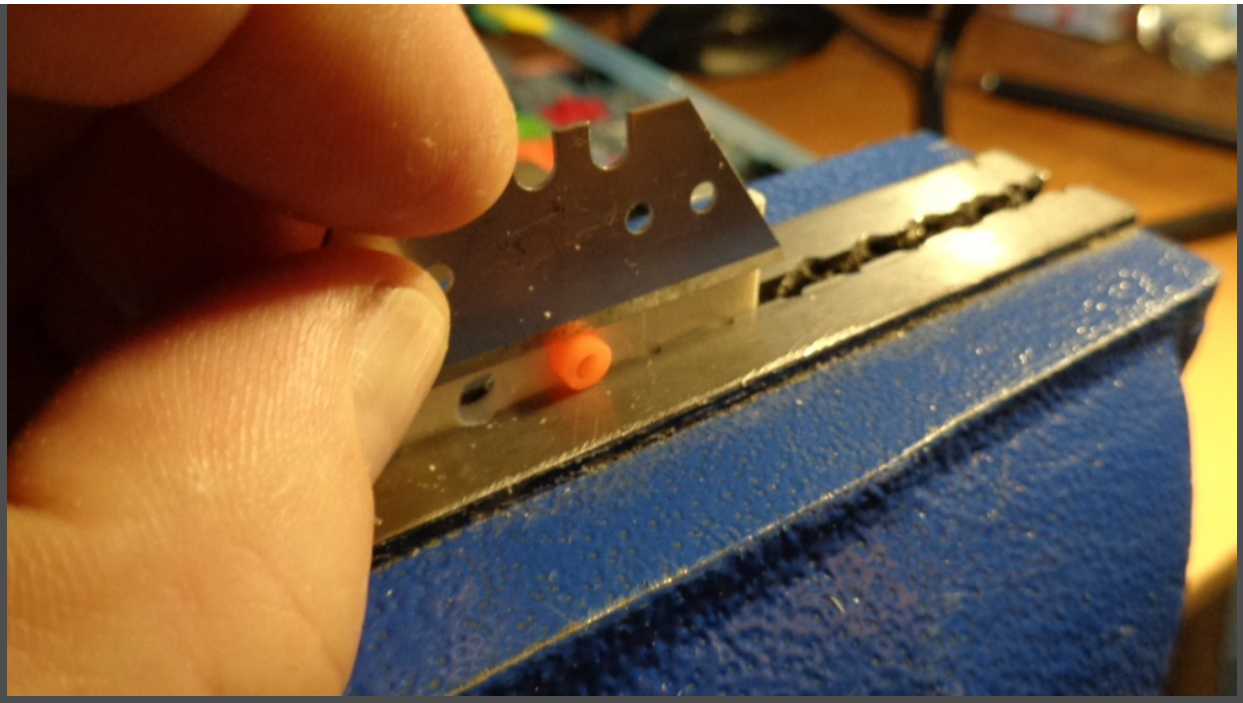


Then we clamp the drilled plastic into our parallel vice. The lower edge of the hole must be in contact with the upper edge of the vice. This makes it possible to work cleaner. Then the iron-on bed can be inserted. Since the plastic plate is 3mm thick, the iron-on bed can be inserted exactly up to the edge of the back. The remaining piece is then 2mm long and is cut off to fit.





When cutting, we have to make sure that this is done as straight as possible. The blade must be sharp, so you should use a new one and only in an emergency take a used one out of the carpet knife. Blades can be bought in any hardware store and should not be more expensive. I've never bought a branded blade for a carpet knife, because in my opinion there are only marginal differences.



Conclusion

This iron-on bed cutter is a quick solution and helps me with my project. Surprisingly, you can work very neatly with it, because the iron-on bed is held firmly in the pre-drilled hole. Even though it all looks very simple and logical now, it was hard to come up with this idea, because I had already come up with much more complicated ideas in my head. Sometimes the simplest solutions are the best. In any case, I can now produce iron-on beds that all have the same height.